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# *Phyllobrostis minoica* sp. n. from Crete (Greece) – an expected discovery (Lepidoptera, Yponomeutoidea, Lyonetiidae)

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**Abstract.** *Phyllobrostis minoica* sp. n. is described from Crete, Greece. It belongs to the *P. daphneella* group and seems to be related to *P. jedmella* Chrétien. The two species are clearly distinguishable by the external characters and by the male genitalia. The adult habitus and male and female genitalia of the new species are illustrated.

## Introduction

Species of the genus *Phyllobrostis* Staudinger, 1859 occur in Europe, the Middle East and southern Africa. This group was revised by Mey (2006), and a total of 11 species were recognised. A recent addition was *P. peninsulae* Mey, 2011 described from the Cape of Good Hope, South Africa (Mey 2011). The disjunctive distribution in three intercontinentally separated sub-ranges is a remarkable feature of the genus. While the isolation of the South African area from the Palaearctic Region appears to reflect reality, the wide distribution gap between Europe and the Middle East sub-range is probably an artifact due to under-collecting in the intermediate countries. The larvae are leaf miners and twig borers of *Daphne* spp. and *Thymelaea* spp. (Thymelaeaceae). Larval host plants of these moths are widely distributed throughout the Mediterranean Region and from West Asia to Japan. On the Balkan Peninsula and in Turkey several species of *Daphne* are known, which could serve as host plants of *Phyllobrostis* species, but the genus has not been recorded from those localities until now. Two excursions were conducted by the author to Turkey in search of *Phyllobrostis*, but without any success so far. Nonetheless, since there are no discernible ecological and geographical barriers on both sides of the Mediterranean Sea (southern Europe and northern Africa), the genus could be expected to have a continuous distribution with species occurring at least on the Balkan Peninsula and in Turkey. The discovery of such species was predicted (Mey 2006: p. 141), and it seemed to be only a matter of time until they are found. The herein presented description of a new *Phyllobrostis* species proves the prediction to be true. Crete is situated in the distributional gap and the record increases the probability of the existence of species in continental Greece as well.

## *Phyllobrostis minoica* sp. n.

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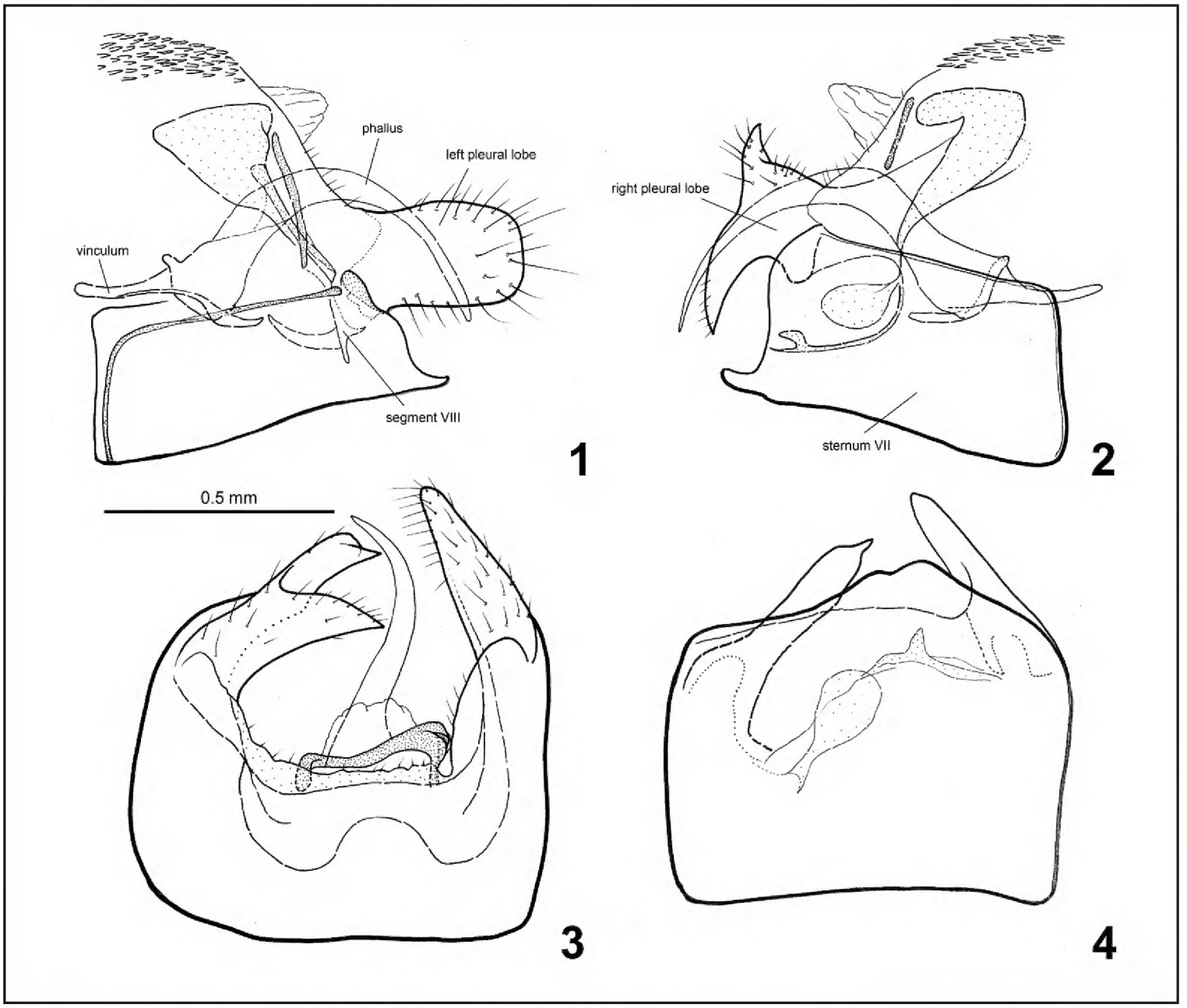
**Material examined.** Holotype ♂, "Hellas, Crete/ Nom. Chania/ 35°21'11"N, 23°54'39"E/ N of Omalos plateau/ at pass, 1150m/ 7.6.2004/ leg. B. Skule, C. Hviid/ & E. Vesterhede", coll. ZMUC Copenhagen, Denmark. Paratypes: 1 ♀, same data as holotype, 1 ♂, 2 ♀♀, same locality as holotype, but collected on 11.vi. 2004, genitalia slide Mey 13/13 (♂) and Mey 3/14 (♀), Museum für Naturkunde, Berlin.

**Derivatio nominis.** The specific name is derived from "Minos", legendary king in Crete and the Minoic culture on the island in the 2nd millennium B.C., which is considered the cradle of civilization in Europe.

**Description.** The general characters of the new species are in agreement with the diagnosis of the genus (Mey 2006). Only unique and diagnostic characters of the new species are treated and described here.

**Adult** (Fig. 7). Forewing length 3.5–4.5 mm, wing span 8.8–9.5 mm. Head pale grey, with a yellow shine. Antennae grey, not annulated, thicker in males than in females, flagellomeres




**Figures 1–4.** Male genitalia of *P. minoica* sp. n. **1** Lateral view, left side **2** Lateral view, right side **3** Dorsal view **4** Ventral view.

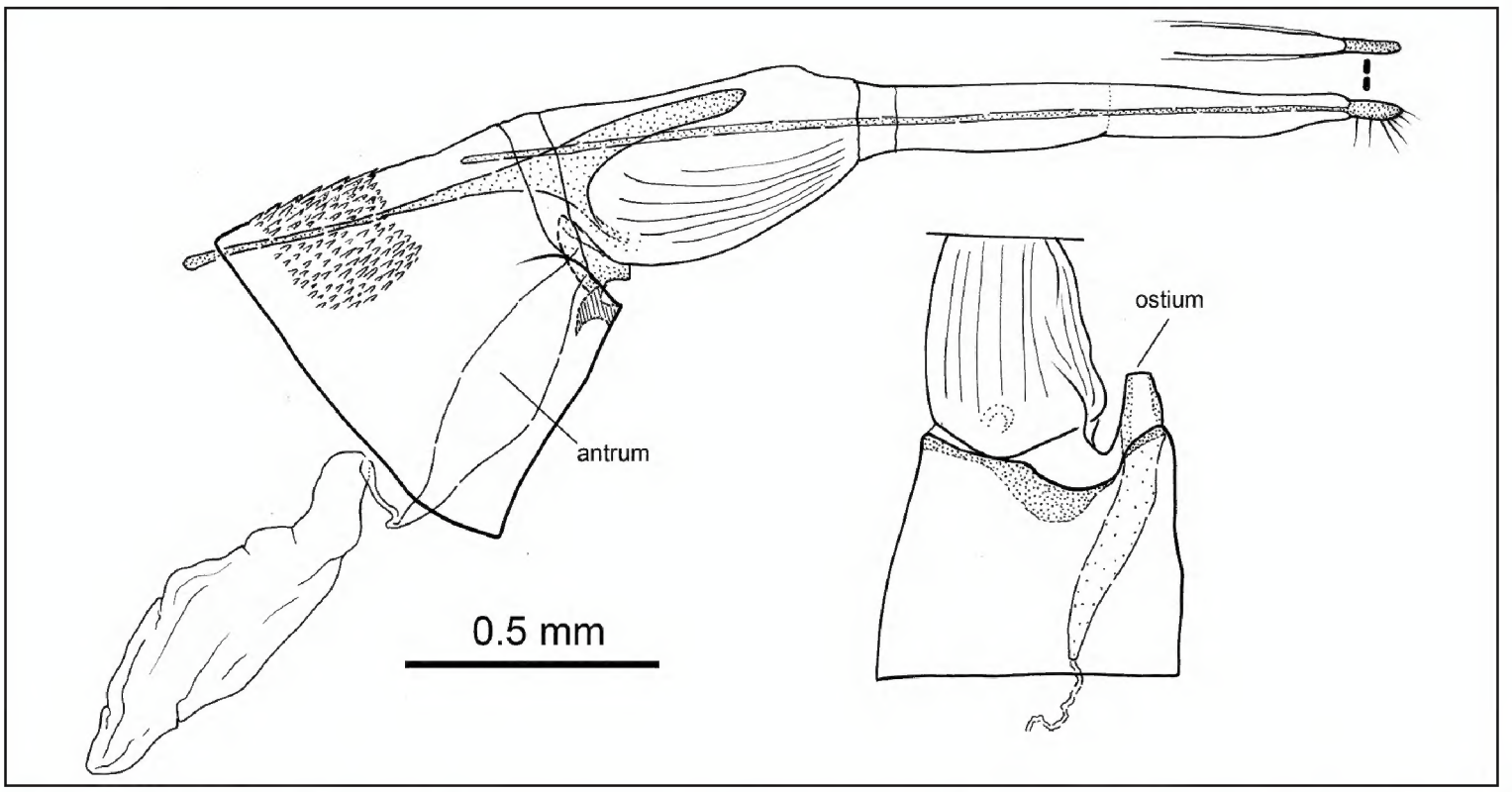



**Figure 5.** Female genitalia of *P. minoica* sp. n., lateral view and ventral view of segments VII and VIII.

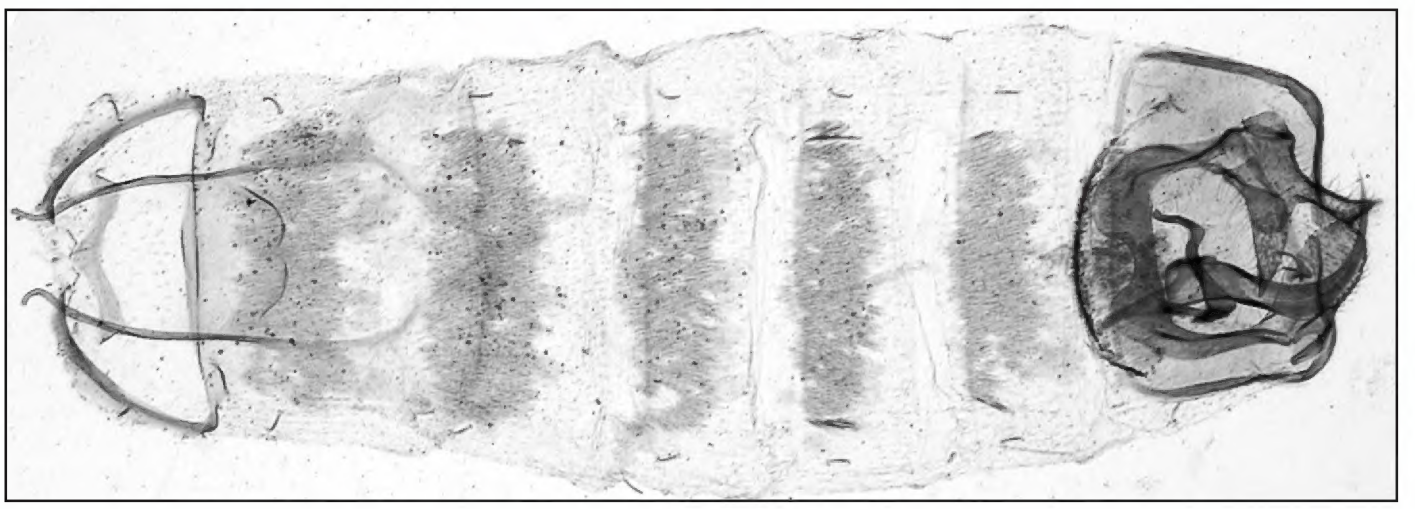


**Figure 6.** Male abdomen of *P. minoica* sp. n. (genitalia slide Mey 13/13).

with complete annulus of slender scales, very short cilia present at ventro-lateral bases of flagellomeres. Piliform scales present behind scape and eye margin. Labial palpi as long as diameter of eye, slender and straight, two distal segments visible, covered with broad, pale grey scales. Thorax and forewings pale grey, fringes slightly paler, forewing scales with pale tips, hindwing scales of same colour as forewing scales. Male with one, female with two frenular bristles. Legs pale grey, subapical spurs of hindtibia before middle as seen from femur. Abdomen on upper and underside pale grey, spined terga from segment III to IV pale orange-brown.

Male genitalia (Figs 1–4, 6). Genital segments asymmetrical, sternum VII short, distal margin rounded, slightly protruding in the middle and terminating with a somewhat notched tip. Sternum VIII a membranous layer on the dorsal side of sternum VII, connected laterally with pleural lobes. Pleural lobes large, left one rectangular, rounded, right one bifid, with dorsally and ventrally directed, triangular parts, acute at tips in dorsal and lateral view. Vinculum greatly reduced, fused with saccus anteriorly to form a short, broad process. Saccus attached to phallus, extending anteriorly into segment VI. Teguminal complex inside segment VII, con-

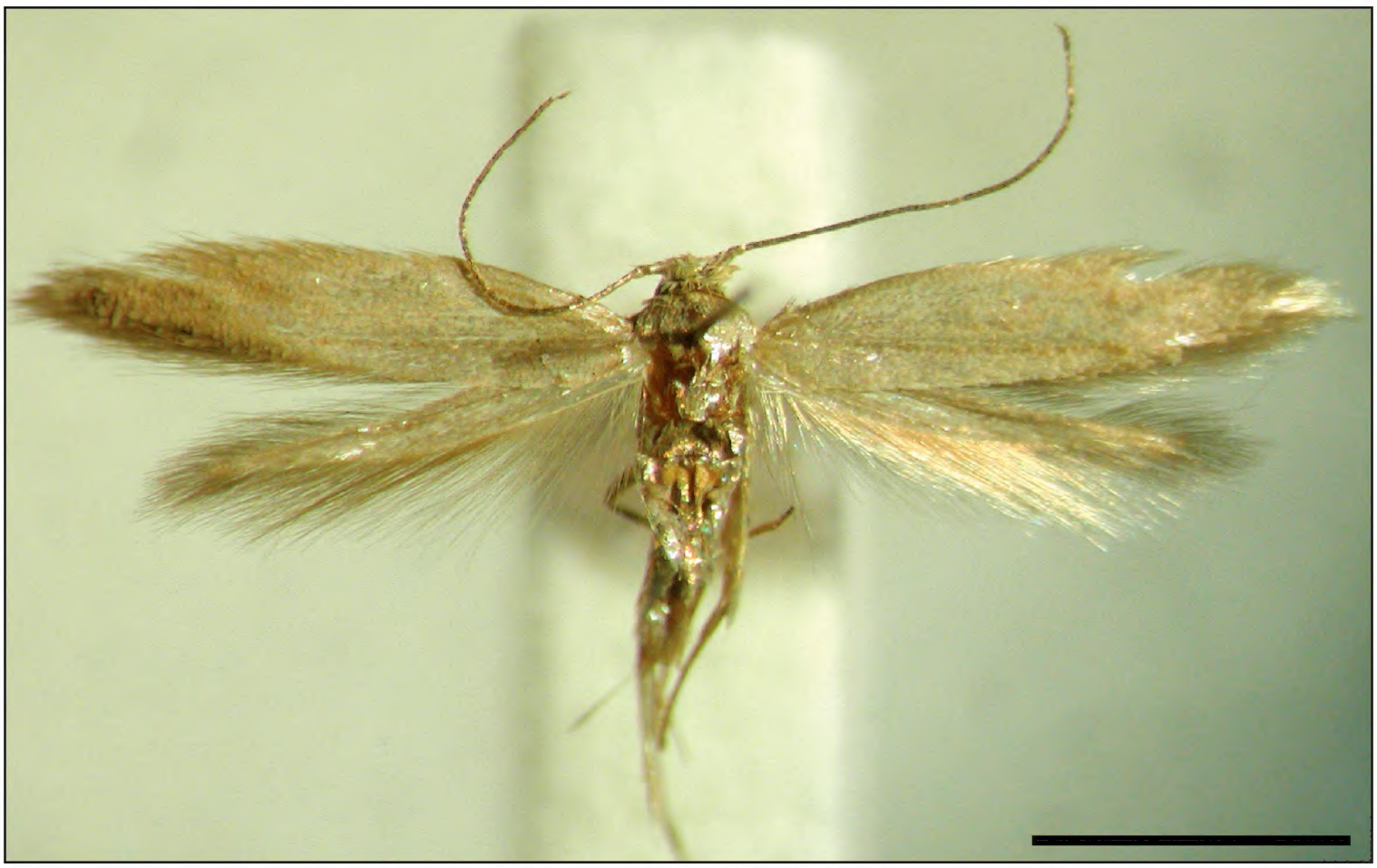


**Figure 7.** Female paratype of *P. minoica* sp. n. (Scale bar: 2 mm).

sisting of a ring-like structure around anal tube. Phallus tubular, long and acute apically, curved ventrad, cornuti absent.

Female genitalia (Fig. 5). Segment VII asymmetrical, distal margin on ventral side irregularly excised and sclerotized, with a protruding genital opening at tip of a conical process attached laterally on the right side to segment VII. Antrum tubular, extending anteriorly to beyond segment VII, narrowed at base, ductus bursae long and somewhat winding, entering elongate and oval bursa at distal apex, signum absent. Ovipositor (segment VIII+IX) telescopic, segment VIII membranous ventrally, with thin, parallel stripes or folds, laterally sclerotized by enlarged, distal ends of apophyses anteriores (a.a.). Apophyses posteriores twice as long as a.a. and fused apically into a short, sclerotized cone (fused papillae anales) with thin bristles on the ventral side.

**Remarks.** The new species belongs to the *P. daphneella* group, which is defined by complete loss of the valvae, a rudimentary gnathos and the small labial palpi (Mey 2006). The latter character is somewhat different in *P. minoica* sp. n. as its labial palpi are longer and clearly visible, but not as large as in the species of the *P. eremitella* group. External characters of the new species resemble those of *P. jedmella* Chrétien, 1907, known from Algeria and Spain. Also, the male genitalia of both species are similar. The main distinguishing traits are the shape of the ventral margin of segment VII, the strongly asymmetric pleural lobes of *P. minoica* sp. n. and the tergum VII with shorter spiniform setae in *P. jedmella*. In the female genitalia, the asymmetric segment VII with a protruding cone bearing the distal part of the antrum and the ostium represent a character observed in the genus for the first time. Unfortunately, the female of *P. jedmella* is unknown; however, *P. minoica* sp. n. female can be expected to be similar to it if the two species are indeed close relatives.

## Acknowledgements

While visiting the Lepidoptera collection in the Zoological Museum in Copenhagen, Ole Karsholt drew my attention to the material of the new species. I am greatly indebted to him and the collectors of the new species, B. Skule, C. Hviid and E. Vesterheide. My thanks go to J. Dunlop who corrected the English text and to L. Kaila, who edited the manuscript.

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